

## EFFICACY REVIEW

**DATE:** 9/30/08

**EPA REG. NUMBER:** EPA Reg. No. 239-2685, Bifenthrin Liquid Concentrate

**DP BARCODE:** D355436

**CHEMICAL NO.:** 128825

**REGISTRANT:** The Ortho Business group

**GLP:** No

**CHEMICAL:** Bifenthrin 0.3% Liquid Concentrate

**PURPOSE:** Provide efficacy data to support label claim for fire ant mound control

**MRID:** 47456401. R. Soufi 2208. Evaluation of the Efficacy of 0.3% Bifenthrin Liquid Concentrate (EPA Reg. No. 239-2685) as a mound treatment for Red Imported Fire Ants; Sponsor- The Scotts Company, Marysville, OH; Performing Laboratories W.C. Mixson and Associates, Apopka, FL and Scotts Company, Apopka, FL;

**TEAM REVIEWER:** BeWanda Alexander

**EFFICACY REVIEWER:** Joanne S. Edwards, M.S., Entomologist *Joanne S Edwards*

### BACKGROUND:

The Scotts Company has submitted efficacy data to support a claim for ant mound control (and mound kill within 15 minutes) for their 0.3% Bifenthrin Liquid Concentrate product, EPA Reg. No. 239-2685.

Directions for use on the draft label:

PRODUCT FACTS	
<b>KILLS FIRE ANTS</b>	On lawns, flower beds, landscape areas, patios, driveways, and sidewalks
<b>WHERE TO APPLY/USE</b>	On fire ant mounds
<b>WHEN TO APPLY/USE</b>	Apply any time fire ant mounds are present
<b>HOW TO APPLY/USE</b>	Apply for 30 seconds directly to mound and surrounding 2 ft. radius
<b>HELPFUL HINTS</b>	For best results, apply in cool weather (65° to 80°F), or in early morning or late evening hours when it is cool and the ants are most active.
<b>PEOPLE &amp; PETS</b> [icon/symbol]	For best results, avoid disturbing treated mounds by keeping people and pets off treated area until spray has dried.

**Marketing Claims include:**

- Complete Mound Kill in [15/30/60/90] Minutes
- Kills [Entire Mound in [15/30/60/90] Minutes
- [32 oz Size/Bottle] Kills/Treats 21 Mounds
- Kills Queen & Colony/Mound
- Kills the Queen & [Entire] Mound [in Just 15/30/60/90] Minutes
- Gentle shower won't disturb the mound
- [Fire Ant] Mound Drench
- Mound soaking formula penetrates the entire colony
- Mound Penetrating/Soaking Formula
- Deep Penetrating Formula
- [Just] Apply for 30 seconds [directly to mound]
- Gentle shower won't disturb the mound
- [Fire Ant] Mound Drench
- Since this formulation is delivered to the mounds as a liquid, it successfully covers the entire mound immediately after application; instead of applying dry or granular formulations, then watering them in the mound. This supports the following claims:
- Mound soaking formula penetrates the entire colony
- Mound Penetrating/Soaking Formula
- Deep Penetrating Formula

**DATA REVIEW:**

There were three separate field studies conducted. The sites were in Apopka, FL, Thompson, GA, and Cleveland, TX. Reported mound sizes ranged from 10 to 14 inches in diameter. At each site there were four replicates, with each replicate consisting of ten mounds. The report did



not say what the four replicates were. Since there was a control group (one gallon of water applied to mound), it may be that three of the replicates consisted of treatment with the product and one replicate was the control, however it is not stated in the report. Mounds were marked with wire surveyor's flags. Evaluation intervals were 5, 15, 30 and 60 minutes, 14 days (at Apopka site only) and 30 days.

#### **Details of the study design excerpted from MRID 47456401:**

**"Formulation:** 0.30% bifenthrin

**Type:** Mound drench using a hose-end ready-to-spray applicator

**Target Insect(s):** Red Imported Fire Ant (*Solenopsis invicta*)

#### **Application Information**

**Timing:** Once @ day zero

**Rate:** One gallon of diluted product was applied to each mound at 1.5 ounces of 0.3% bifenthrin per mound.

**Experimental Design:** Randomized Complete Block Design

**Number of Replicates:** Four replicates per treatment.

Each replicate consisted of 10 active mounds.

#### **Experimental Procedure:**

Each treatment consisted of four replicates with ten mounds per replicate. Insecticide applications were made to each mound and a 2 foot radius around the mound. Each mound was disturbed when checking for activity. Mounds were considered active if ants were observed walking in a normal manner. Mounds were considered inactive when no ants were capable of moving coherently. A mound was considered dead when at least 95% of the ants were dead."

#### **Reported Results:**

The study author reported that at all sites, 95% of the mounds were realized within fifteen minutes.

#### **Excerpted from MRID 47456401:**

##### **"Apopka, FL Speed/Residual Test**

Bifenthrin mound drenches began to control Red Imported Fire Ants almost immediately. By 15 minutes, the treatment controlled Red Imported Fire Ant mounds at least 95%. At 30 days after treatment, 1.5 oz/mound Bug B Gon Max controlled fire ant mounds 95% compared to the untreated. Some new mounds were observed, but only 0.5 new mounds/plot were observed within a 10 ft radius of the mounds treated with 1.5 oz Bug B Gon Max/mound.

##### **Thomson, GA Speed/Residual Test**

Bifenthrin mound drenches began to control Red Imported Fire Ants almost immediately. By 15 minutes, Bug B Gon Max exhibited 100% control of Red Imported Fire Ant mounds. At 30 days after treatment, Bug B Gon Max controlled fire ant mounds 95% compared to the untreated. Some new mounds were observed, but only 0.5 new mounds/plot were observed within a 10 ft radius of the mounds.

##### **Cleveland, TX Speed/Residual Test**

As in the two previous two locations, 0.3% bifenthrin began to quickly work on the mounds. By the 15 minute evaluation, 95% control of the treated mounds was realized. By 30 days after application, all treated mounds were controlled 100% with no mound relocation evident within the required 10 foot radius of any treated mound. One mound relocated from a water-treated plot."

There were no raw data contained in the report to confirm the numerical finding that 95% of the fmounds were dead within fifteen minutes. The mounds were not excavated. The only study

design detail on how observations were performed was "mound was disturbed". Since the mounds were not excavated, there is no way to confirm that the mound *i.e.*, workers, brood, and queen, were dead in fifteen minutes. It could be that just the foraging ants were killed.

#### **Issues With Study:**

- Numerical basis statements "95% controlled and "100% controlled" not provided.
- Raw data not included.
- No details on controls.
- Application methodology was different than label directions (apply 30 seconds to mound and adjacent area vs. 1.5 ounces/one gallon of water)
- Details on level of pretreatment mound activity of the treatment/control mounds not provided.
- Details on how a mound was determined to be an active mound lacking.
- Mounds not excavated, *e.g.*, observations on mortality of ants, brood and queen in the mound after fifteen minutes not provided.

#### **RECOMMENDATIONS:**

The submitted data do not support a control fire ant mounds, nor a quick kill claim for the reasons listed above.

Based on the submitted data, the only allowable claims is "kills foraging fire ants"

Labeling Changes:

In the Table below: